Appendix B

Externalities

Compiled by HECO based on information provided by collaborative parties

APPENDIX B

Externalities

There is consensus that externalities should be considered in the utilities' resource selection processes, and that the manner in which externalities are considered can be improved. However, there is no consensus regarding the value of the externalities benefits and costs of RE resources (relative to those of fossil-fueled resources), or as to how the relative externalities should be considered.

I. EXTERNALITIES

IRP Framework

The PUC's IRP Framework requires that external costs and benefits be considered in the integrated resource planning process, but does not specify the weight to be given externalities in selecting the utility's preferred integrated resource plan ("IRP Plan"). Re Integrated Resource Planning, Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) at 25.

External costs are direct or indirect costs to or negative impacts on the activities of entities outside the utility. Under the IRP Framework, external costs include "environmental, cultural and general economic costs." In general, societal costs are equal to utility costs plus external costs (less "transfer" payments, which are payments from the utility, such as taxes, to society in general).

Consideration of "externalities" would include the consideration of direct and indirect external benefits, as well as external costs.[1] For example, (1) proponents maintain that the development of Hawaii's renewable resources would result in more economic development within the State than would the development of fossil-fueled resources (which the fuel must be imported), while (2) opponents maintain that development of lower-utility cost fossil-fueled resources could result in lower utility rates, more disposable income, and a stronger state economy.

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[1] The IRP Framework and the State Plan both refer to costs and benefits. See, e.g., IRP Framework ¶II.E. and H.R.S. §226-18(c)(4).

The IRP Framework provides that the goal of integrated resource planning is the identification of the resources or the mix of resources for meeting near and long-term consumer energy needs in an efficient and reliable manner at the lowest reasonable cost. Among the governing principles included in the IRP framework are statements that IRP Plans (1) shall comport with state and county environmental, health and safety laws and formally adopted state and county plans, (2) shall be developed upon consideration and analyses of the costs, effectiveness, and benefits of all appropriate, available, and feasible supply-side and demand-side options, and (3) shall give consideration to the plans' impacts upon the utility's consumers, the environment, culture, community lifestyles, the State's economy, and society.[2]

The IRP Framework provides that the utility (1) shall develop a number of alternative plans, each representing optimization from a different perspective, (2) shall describe each plan's impact on both the utility and its customers, and on external elements -- the environment, people's lifestyle and culture, the State's economy, and society in general, (3) shall rank the various alternative plans based on such criterion as it may establish with the advice of its advisory groups, and (4) shall designate one of the plans as its preferred plan.[3]

Quantification (Monetization) Of Externalities

The IRP Framework requires that the costs and benefits for each feasible resource option, shall to the extent possible and feasible, be quantified and expressed in dollar terms. When it is neither possible nor feasible to quantify any cost or benefit, such cost or benefit shall be qualitatively measured.[4] The PUC has indicated that it considers quantification to be infeasible if it is not reasonable to quantify a cost or benefit, in the sense that it is not meaningful or useful or is unduly burdensome to do so.[5]

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2 IRP Framework ¶¶II.A. and II.B. 2, 3, 4.

3 IRP Framework ¶¶IV.I.2, 4.

4 IRP Framework, ¶IV.E.2.

5 D&O 11630 at 13; 134 P.U.R.4th at 67.

The HECO utilities maintained that it was not feasible to monetize externalities in their first IRP cycle, and that a more complete analysis was possible using a qualitative assessment methodology.[6] One way in which externalities were considered was through the multi-attribute analysis system, which was used to evaluate and screen 20 candidate plans to produce final candidate plans. The attributes identified by HECO included (1) a corporate/financial attribute (based on total capital costs for new supply-side resources), (2) a customer/economic attribute (based on total resource costs with end-effects and 20-year utility costs), (3) an energy efficiency/self-sufficiency attribute (measured by accumulated DSM energy impacts, accumulated energy supplied by alternative renewable resources, and the total amount of oil used over the 20-year planning period), and (4) an environmental/social attribute (based on the total tons of six different air pollutants).

In D&O 13839, the PUC concluded that:

> We also agree with HECO that quantification of externalities is a complex issue. We note that there is substantial uncertainty and disagreement even among experts in the field as to the proper quantification and valuation of externalities. Further, we continue to harbor those uncertainties we expressed in Decision and Order No. 11523 concerning the appropriateness and impact of adders. Thus, we find that HECO's qualitative approach taken in this initial integrated resource planning cycle to be a reasonable approach and conclude that HECO has adequately considered the external impacts of its preferred plan. We expect HECO to quantify externalities in subsequent integrated resource planning cycles.

D&O 13839 at 26.

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[6] HECO's preferred IRP Plan was not the absolute least-cost plan on a utility or total resource cost basis. HECO included a 180 MW coal-fired facility as its next generating unit, based in part on qualitative externality considerations such as reducing Hawaii's dependence on fuel oil.

The HECO utilities also proposed to jointly participate in an Externalities Action Plan, whose objective is to develop a process which incorporates external costs and benefits into the planning process on a level playing field among resources. In Phase One, the utilities will attempt to identify the externalities, provide guidelines for monetization, and determine how externalities will be used in the decision making process. In Phase Two, the utilities will attempt to develop Hawaii specific monetized values, and develop an IRP externalities workbook. In Phase Three, the utilities will utilize the external costs and benefits in the integration process. See D&O 13839 at 31-32.

In D&O 13839, the PUC concluded as follows:

> We conclude that HECO's strategy for quantifying externalities is reasonable. HECO shall submit its findings and recommendations regarding identification, quantification, and utilization of externalities for commission approval. HECO shall secure such approval before incorporating the results of its efforts in any future integrated resource planning process.

[D&O 13839 at 32.]

The HECO Utilities have formed an Externalities Advisory Group, and have retained a consultant for the first two phases of the Externalities Action Plan.

Weight To Be Given Externalities

Proponents of giving equal weight to externalities in considering renewables in the IRP process base their position on State policies and IRP goals supporting the use of RE resources, increased energy self-sufficiency, greater energy security and the consideration of externalities, and on the net externality benefits of RE resources (relative to fossil-fuel resources).

The State of Hawaii's policy strongly supports the development and utilization of renewable energy resources. The Hawaii State Constitution, Article XI, section 1, provides in relevant part:

> **Section 1.** For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self sufficiency of the State.

This commitment is further developed in the Hawaii State Planning Act, as amended, H.R.S. ch. 226, which identifies as among the State's goals:

> (2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased; and
>
> (3) Greater energy security in the face of threats to Hawaii's energy supplies and systems.

H.R.S. §226-18(a). These goals are further manifested in the following policies, H.R.S. §226-18(c) to:

> (1) Support research and development as well as provide the use of renewable energy resources; . . . [and]
>
> (3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural and public health costs and benefits . . . .

This commitment is supported by H.R.S. §269-27.2. H.R.S. §269-26.2(b) mandates that the PUC "investigate and determine the extent to which electricity generated from nonfossil fuel sources is available to public utilities that supply the public" and provides discretionary authority to the PUC to "direct public utilities. . . to arrange for the acquisition of and to acquire electricity generated from nonfossil fuel sources . . . and to employ and dispatch the nonfossil fuel generated electricity in a manner consistent with the availability thereof to maximize the reduction in consumption of fossil fuels in the generation of electricity to be provided to the public."

H.R.S. §269-27.2(c) allows the PUC to prescribe the rate to be paid to a nonfossil fuel producer, and directs the PUC, in determining the just and reasonable rate to be paid to such a producer, to:

> consider, on a generic basis, the minimum floor a utility should pay, giving consideration not only to the near-term adverse consequences to the ultimate consumers of utility provided electricity, but also to the long-term desirable goal of encouraging, to the greatest extent practicable, the development of alternative sources of energy.

In recognition of the possibility that firm capacity payments to such producers may result in higher costs to the utility, H.R.S. §269-27.2(d) provides for expedited interim rate increase procedures specifically for firm capacity payments to nonfossil fuel producers.

Potential externality benefits of renewables include: (a) a cleaner environment; (b) greater stability in energy prices (renewables, with low or zero fuel costs, can provide a hedge against fuel oil price volatility); (c) enhanced energy security (substantial deployment of renewable technologies could reduce the strategic importance of oil and reduce energy supply risks); and (d) economic benefits. The primary environmental benefits are reduced greenhouse gas emissions, reduced risks of oil spills, reduced toxic air emissions, and reduced risks of future environmental regulation. The primary economic benefits are increased employment, reduced supply risk (expressed as an energy security cost), reduced price risk, reduced environmental regulation risk, and improved trade balance. The benefits generally are based on displacing imported electricity with in-state production, and are more compelling if renewable energy manufacturing takes place in-state.

Opponents of giving externalities equal weight with utility costs (or total resource costs) in the assessment and optimization of utility resource options base their position on the potential rate impact of giving equal weight to externality costs in selecting resources, the "perverse" effects that a piecemeal approach to externalities may cause[7], and the uncertainty or speculative nature of externality values (if supply-side or other resource options with lower utility costs, but higher societal costs, are rejected in favor of options with lower societal costs, but higher utility costs.)

In addition, issues have arisen in other jurisdictions as to whether utility regulatory commissions can or should impose additional costs (which must be paid by utility customers) to further control environmental or other societal impacts beyond the level of control required by existing law.[8]

For example, New York electric utilities have applied an adder for certain air emissions as part of their complex bid evaluation processes, which consider price and non-price factors.[9]

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7 Customers with self-generation and cogeneration opportunities may elect to bypass the utility system due to the higher rates resulting from the utility's consideration of such costs, and total emissions (from the self-generator/cogenerator plus those from the utility) may actually increase.

8 For example, the Supreme Judicial Court of Massachusetts recently held that the Massachusetts Department of Public Utilities ("DPU") exceeded its authority in requiring consideration in its integrated resource management processes of environmental externality values (i.e., monetized values for certain air emissions) that may not reasonably be expected to have an effect on a utility's costs and, hence, on the rates that its customers must pay. Massachusetts Electric Co. v. Department of Public Utilities, 419 Mass. 239, 643 N.E.2d 1029, 158 P.U.R.4th 162, 165 (1994).

9 The adder used in the bid evaluation process does not translate into an equal adder to the price New York utilities are willing to pay for power from non-emitting resources. The New York practice is also of questionable legality in light of FERC's recent avoided cost rulings.

However, an Administrative Law Judge ("ALJ") has ruled in a recommended decision in a New York Public Service Commission ("N.Y. PSC") docket that "the uniform use of monetized externality adders should not be mandated at this time", that the current use of such adders in competitive bid evaluations be discontinued, and that such adders "not be used in any calculation of the prices to be paid to IPPs." The N.Y. ALJ cited the potential for significant rate impacts, the potential for negative environmental consequences (due to the potential for bypass of the utility system), the availability of environmental benefits at lower cost, the potential for rate inequities, and other factors. Re Proceeding to Determine Whether to Incorporate Environmental Costs into the Long-Run Avoided Costs for the State's Electric Utilities and Whether and in What Context Estimates of the Value of Externalities Should Be Utilized, Case 92-E-1187, Recommended Decision (ALJ Apr. 12, 1995).[10] The ALJ concluded that:

> The above analysis suggests that there is a material risk that both social welfare and overall environmental quality will be harmed by requiring the utilities to utilize a specifically monetized externality factor in all planning and decision-making. It also suggests, however, that the utilities would be unreasonable and imprudent to ignore such factors. Between those two extremes lies a fairly broad range of approaches to considering externalities, each of which could be deemed reasonable depending on the circumstances. Within this range, the utilities should be allowed to exercise their management judgment, the reasonableness of which will be tested by either the regulator's prudence jurisdiction or the potentially harsher judgment of the competitive market, if and when such a market is created. There may well be circumstances when the public interest would be served by increasing the environmental compliance of the utilities beyond that mandated by the environmental laws or by internalizing costs not otherwise required, but the current state of the State's economy suggests that those circumstances do not now exist.

Id. (footnote omitted).

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[10] The ALJ ruling is being reviewed by the N.Y. PSC.

II. EXTERNALITY ADDERS

Minimum Floor Rates

The current legislatively-mandated mechanism for encouraging as-available renewable energy projects is the minimum floor rate.

H.R.S. §269-27.2(c) provides that, if a public utility and supplier of nonfossil fuel generated electricity ("nonfossil fuel producer") do not reach agreement on purchase rates, the rates shall be prescribed by the PUC (and shall not be less than 100% of the utility's avoided costs). The subsection further provides that, in "determining the amount of the payment in relation to avoided cost," the PUC "shall consider, on a generic basis the minimum floor a utility should pay . . . ."

The PUC amended its Avoided Cost Rules in 1985 to implement this requirement. H.A.R. §6-74-22(a) requires that the rates payable for purchases from QFs be not less than 100% of avoided cost and not less than the minimum purchase rates, which are defined as the avoided energy costs in effect on the date that a legally enforceable obligation (which is defined as a binding contract, approved by the PUC) becomes effective.[11] The PUC has allowed some leeway in selecting the date used to establish the minimum rates.[12]

The application of the minimum rates has resulted in payment rates in excess of avoided costs. In 1992, 1993 and 1994, the HECO utilities paid approximately $10 million, $10 million and $14 million in excess of their filed avoided energy costs for purchased energy, generally due to the inclusion of minimum purchase rates in their power purchase agreements for non-fossil fuel producers. Thus, the requirement for minimum purchase rates for nonfossil fuel producers may violate FERC's recent avoided cost cap rulings. See Re Connecticut Light & Power Co., Docket No. EL93-55-000, Order Granting Petition for Declaratory Order (FERC Jan. 11, 1995).

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[11] H.A.R. §6-74-1. Although the rule, on its face, applies to QFs, the HECO utilities have taken the position that minimum purchase rates apply only to nonfossil fuel producers. This issue has been raised in a number of dockets, but has not been decided by the PUC.

[12] Compare Re Hawaii Electric Light Co., Docket No. 6956, Decision and Order No. 11333 (Oct. 28, 1991) (Wailuku River Hydroelectric Power Co.) with Hawaiian Electric Co., Docket No. 6944, Decision and Order No. 11611 (May 7, 1992) (U.S. Windpower, Inc.)

The Federal Energy Regulatory Commission ("FERC") has held that jurisdiction over the rates charged by QFs for sales at wholesale (which includes sales to public utilities) is vested in FERC, and that PURPA preempts state statutes or regulations that would require the payment of a rate in excess of avoided cost (determined in accordance with the FERC rules, as implemented by the States) to QFs. (FERC also held that its decision would not have retroactive effect, and that FERC will not entertain requests to invalidate pre-existing contracts where the avoided cost issue could have been raised, but was not.[13]) According to the FERC ruling, state commissions could require payment rates in excess of avoided costs for entities that are not QFs or public utilities (under the Federal Power Act).

Externality Adders in Hawaii

In MECO Docket No. 6742, Zond Pacific proposed an "enviromental and security premium" pricing structure, based on what it alleged to be avoided externality costs. The PUC determined that a QF and a utility are not prohibited from negotiating a contract containing an "avoided external cost pricing structure", citing H.A.R. §6-74-15(b)(1).[14] H.A.R. §6-74-15(b)(1) provides that electric utilities and QFs may agree to terms and conditions that differ from those that would otherwise be required by the Avoided Cost Rules. However, the PUC cautioned that "any such contract must receive the PUC's approval if the utility is to recover any payments it makes under the contract from its ratepayers. In its review of such a contract, the PUC must determine, among other things, whether the rates and pricing structure are just and reasonable and in the overall best interest of the general public."[15] The PUC further noted that consideration of external costs in determining a utility's resource costs would be fully explored in

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13 Re Connecticut Light & Power Co., Docket No. EL93-55-000, Order Granting Petition for Declaratory Order (FERC January 11, 1995). The FERC decision could be appealed to the United States Circuit Court of Appeals.

14 Re Maui Electric Co., Decision and Order No. 12118 (January 7, 1983), as amended by Order No. 12122 (January 12, 1993).

15 D&O 12118 at 7.

Docket No. 7310 and in the IRP dockets for the various utilities.[16] Thus, the PUC stated that "Zond's proposal to negotiate a power purchase contract that includes an environmental and security premium pricing structure appears to be premature."[17]

The issue of whether an externality adder should be included in determining the avoided energy cost rates payable to as-available energy producers has been raised in Docket No. 7310. The parties to Docket No. 7310 (HECO, HELCO, MECO, KE, CA, the Department of Defense, Hawaiian Sugar Planters' Association, and Mauna Kea Power Co.) were not able to reach agreement on the issue of whether an externality adder should be included in determining avoided energy cost rates for as-available energy producers. Each party submitted to the PUC a Statement of Position covering unresolved issues in this proceeding, which included the issue of an externality adder.

In Docket No. 7310, the NUG parties proposed that an externalities credit be paid to new renewable resource projects (and existing projects that were unsuccessful in negotiating a credit), and that the PUC include as a placeholder an externality value of 5 mills/kwh until the value of avoiding externality costs from clean new utility generation is determined. The CA recommended that a blank line be included in the avoided cost formula to allow the formula to reflect avoided externality costs when and if issues related to quantifying externalities are resolved in the future.

The HECO Utilities opposed payment of externality credits based on their position that (1) there is no basis in the Avoided Cost Rules for requiring electric utilities to pay an externalities adder, (2) payment of such an adder would not be "just and reasonable to the electric consumer", (3) any externalities adder would be limited to nonfossil fuel producers with demonstrable net externality benefits, and such producers are already paid more than avoided costs as a result of the provision of minimum rates, (4) the requirement of an externalities adder would be premature pending determination of the weight to be given externalities in the IRP process, and (5) any externalities adder would be speculative pending determination of the appropriate method to be used in quantifying and monetizing externalities.

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16 See Order No. 12122 at 1.

17 D&O 12118 at 7-8.

Externality Adders In IRP

In its IRP Framework decision, the PUC declined to adopt adders to give a cost advantage or credit for resource actions that have essentially no external costs over options that have external costs, although the PUC reserved its authority to revisit the issue of adders at a later time. Among other factors, the PUC indicated that it was unclear as to the appropriateness of adders, it was uncertain about the ramifications and impact of the inclusion of adders, and percentage adders appear to have little relationship in fact to the external costs sought to be minimized or avoided. Re Proceeding to Require Energy Utilities in Hawaii to Implement Integrated Resource Planning, Docket No. 6617, Decision and Order No. 11523 (March 12, 1992) at 22-24.

In its recent decision in HECO IRP Docket No. 7257, the PUC did not accept the DSM cost credit or adder proposed by one of the parties, and stated that the IRP Framework does not require that external costs and benefits and internal (utility and ratepayer) costs and benefits be given equal weight. D&O 13839 at 25.

FERC's Avoided Cost Cap Ruling

FERC's recent avoided cost cap rulings appear to preclude the payment of an externalities adder to an RE producer. FERC has indicated that, "in setting avoided cost rates, a state may only account for costs which actually would be incurred by utilities," and that a state "may not set avoided costs rates . . . by imposing environmental adders or subtractors that are not based on real costs that would be incurred by utilities." Re Southern California Edison Co., Docket No. EL95-16-000, Order on Requests for Reconsideration (F.E.R.C. June 2, 1995).[18]

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[18] States may choose to provide taxpayer subsidies for renewable energy, not utility avoided cost adders. Rates for QF power that exceeds avoided cost do not violate PURPA if they are offset by a "dollar-for-dollar tax credit, calculated and credited to the utility on a month-by-month basis, that equals the amount by which rates . . . exceeded the utility's avoided cost." Re CGE Fulton, L.L.C., Docket No. EL95-27-001, 70 F.E.R.C. ¶61,290, 1995 FERC Lexis 404 (F.E.R.C. March 15, 1995), reconsideration denied, 71 F.E.R.C. ¶61,232, 1995 FERC Lexis 1027 (May 25, 1995).

However, the FERC rulings do not appear to preclude the consideration of externalities in the selection of a utility resource plan (which could include renewable resources, or which could form the basis for a higher utility avoided cost determination for purchased power resources, including renewable resources, that provide equivalent externalities benefits).[19]

Positions Of The Parties

Some of the parties maintain that externality adders should be considered and/or adopted to accommodate the environmental and/or societal benefits inherent in the use of RE resources.

Some of the parties that would otherwise support an externality adder recognize that FERC's recent rulings have called into question the legality of State externality adders. In general, they either urge that any uncertainty regarding the application of the FERC rulings to Hawaii be resolved by application for declaratory ruling, or that further consideration of externality adders be deferred until the State's authority to impose them has been clearly established.

Some of the parties maintain that utilities and their customers should not be required to pay more than avoided costs for power generated from renewable resources in order to promote the expedited development of renewables or to promote other societal goals (such as a cleaner environment). At the same time, such parties agree that customers should be offered the opportunity to voluntarily pay a "green pricing" premium.

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[19] The qualitative consideration of externalities can have an impact in increasing the avoided cost available to renewable resources. For example, HECO did not adopt the least utility-cost plan as its preferred IRP Plan in Docket No. 7257. HECO adopted a somewhat more expensive plan, from a utility-cost standpoint, that included coal-fired generation in order to reduce HECO's dependency on fuel oil. To the extent that a renewable resource can provide equivalent benefits, the renewable resource could receive a price higher than that based on the utilities least utility-cost plan (which might include only oil-fired generation).